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## Assessment Of The Future Liver Remnant Function Using Mebrofenin Scintigraphy In Patients Undergoing Major Hepatectomy: An Australian Case Series

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**Background** : Post-hepatectomy liver failure (PHLF) is a major complication with a high mortality rate after hepatectomy. Although computed tomography (CT) volumetry (CTV) is commonly used to determine the volume of the future liver remnant (FLR), it does not inform the quality of FLR. 99mTc-Mebrofenin scintigraphy is used to assess the FLR function and assist surgeons with preoperative decision-making process such as two-staged approach with portal vein/ hepatic vein embolization, upfront hepatectomy or palliative management.

**Methods** : A prospectively maintained hepatobiliary database at Western Health (2020-2021) identified 11 patients who received mebrofenin for operative workup.

**Results** : Nine patients consented for the study. Four patients were diagnosed with cholangiocarcinoma, followed by four colorectal liver metastases and one hepatocellular carcinoma. All patients were male with a median age of 55 years (IQR 53 – 61). The initial median FLR percentage on CTV was 15.1% (IQR 11.5 – 17.8) and a median mebrofenin uptake rate of 2.14%/min/m2 (n = 5, IQR 1.55 – 2.15). 89% (8/9) and 80% (4/5) had FLR volume and mebrofenin uptake rate below the cut-off values for PHLF. Eight patients underwent portal vein and/or hepatic vein embolisation which improved the uptake rate to 3.26%/min/m2 (IQR 2.82 – 3.45). Three patients underwent right hemihepatectomy and four exploratory laparotomies due to intraoperative findings of metastases. No patients developed PHLF. Two had disease progression.

**Conclusions** : This is the first Australian case series of Mebrofenin scan to our knowledge, which highlights that it can assist a surgeon in assessing the FLR function in addition to volumetry to avoid the likelihood of PHLF.

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